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STUDIES OF PERUVIAN BIRDS. NO. XXXIX¹

THE GENUS VIREO

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I am indebted to the authorities of Field Museum of Natural History, Chicago, the United States National Museum, Washington, D. C., and the Senckenbergian Museum, Frankfort a. M., Germany, for critical specimens used in the following study.

Names of colors are capitalized when direct comparison has been made with Ridgway's "Color Standards and Color Nomenclature."

Vireo olivaceus olivaceus (Linnaeus)

Muscicapa olivacea LINNAEUS, 1766, Syst. Nat., 12th Ed., I, p. 327, part—based on the Olive-coloured Flycatcher of Edwards, Gleanings, p. 93, Pl. xxv; the Red ey'd Flycatcher, *Muscicapa oculis rubris* of Catesby, Carolina, I, p. 54; *Muscicapa jamaicensis* of Brisson, Orn., II, p. 410; I accept the reference to Catesby, following (as first reviser) Baird, 1866, Smiths. Misc. Coll., No. 181, p. 335, with type locality as Carolina.

Vireo virescens VIEILLOT, 1808, Hist. Nat. Ois. Amér. Sept., I, p. 84, Pl. LIII—no locality; stated to be New Jersey, 1819.

Vireo bogotensis BRYANT, 1860, Proc. Bost. Soc. Nat. Hist., VII, p. 227—Bogotá, Colombia; Mus. Comp. Zool.

Although I recognize the composite nature of the original *Muscicapa olivacea*, I now believe that there is no valid obstacle to accepting Baird's restriction of the name to Catesby's Red ey'd Flycatcher. This procedure has the added value of maintaining a name long in use in preference to one more recently proposed, a change, furthermore, not obligatory under the International Rules of Zoological Nomenclature.

¹ Earlier papers in this series comprise American Museum Novitates Nos. 500, 509, 523, 524, 538, 545, 558, 584, 646, 647, 668, 703, 728, 753, 756, 757, 785, 819, 860, 861, 862, 889, 893, 894, 917, 930, 962, 963, 994, 1042, 1043, 1044, 1045, 1066, 1095, 1108, 1109, and 1126.

The North American bird ranges in winter over much of northern South America, as far as Bolivia (recorded by Ridgway and Hellmayr, though without details) and the Matto Grosso region of Brazil, crossing the Amazon as far downstream as the Rio Tapajoz. In this winter range it meets several resident forms and also migrants of one of them, *chivi*, in its winter range. This contact with migrant *chivi* is brief and occurs at the time when one of the forms has reached its winter home and just before the other has left for its journey to its breeding range. In the Matto Grosso region, however, *olivaceus* may spend the "winter" with the population of *chivi* that breeds in that area.

In most cases it is not difficult to distinguish *olivaceus* from *chivi* but there is sufficient overlap of characters to necessitate careful examination in certain cases. As a rule, *olivaceus* has the ninth (sub-external) primary distinctly longer than the sixth while *chivi* has the ninth shorter than the sixth, usually shorter than the fifth. Nevertheless, I have various examples of undoubtedly *olivaceus* from North American localities with the ninth primary shorter than the sixth, coming very close to agreement with the extreme variation of *chivi*. In general coloration, the two forms overlap to a pronounced degree although *olivaceus* apparently never has as bright yellow on the crissum as is found in certain extremes (but not the average individuals) of *chivi*, and there is no distinction of color that is of especial taxonomic value. In size, *olivaceus* usually is larger, with wing 73–85 mm., but *chivi* has the wing 63–74.5 mm. in length, just passing the minimum of the North American form. Thus far I

have not detected a specimen that does not have at least one of its characters distinctive enough to fix its identity as between the two forms in question but the resemblance of the two forms is so great that their specific identity should not be open to question.

Dwight (1899, Ann. N. Y. Acad. Sci., XIII, p. 236) gave an account of the complete postnuptial molt of *olivaceus*, a process that takes place in August and September, before the southward migration, but he stated that the nuptial plumage is thereafter acquired by wear. The material now in hand demonstrates, however, that there is also a prenuptial molt from February to April (possibly starting earlier than February). Nineteen specimens collected in these three months all show replacements occurring throughout the plumage or else with plumage beautifully fresh in contrast to the abraded dress of the birds collected from October to December.

It is impossible to say with certainty just which records of *olivaceus* from Perú belong to that form and which should be transferred to *chiri* since *chiri* was not recognized as a Peruvian bird until 1889. However, three records listed as *agilis* presumably belong to *chiri*. Taczanowski puts all the Peruvian records under *olivaceus* where most of them had been assigned by earlier authors. These include records from Chamicuros, Chayavitas, Huambo, Guajango, Callacate, Pebas, and "Upper Ucayali," and may belong to migrant *olivaceus*, migrant *chiri*, or, if residents, to one of several forms, depending on the locality. The various possibilities will be mentioned in the discussions of the various forms. Two specimens from Huiro, from among those from Huiro and Maranura that Sclater and Salvin assigned to *olivaceus*, are *chiri*; but other examples from the same places may prove to be *olivaceus*. The only records about which there is no doubt are comparatively recent ones from Yahuarmayo and Anco and a much older one from Yurimaguas.

Vireo olivaceus flavoviridis (Cassin)

Vireosylvia flavoviridis CASSIN, 1851, Proc. Acad. Nat. Sci. Phila., V, p. 152—Panamá City

and San Juan de Nicaragua; four cotypes formerly in Acad. Nat. Sci. Phila., now lost.

The original Panamá specimens are said to have been collected by Bell who reported the species as common near Panamá in May. Since the form described as *insulanus* must breed about that time in Panamá, the cotypes of *flavoviridis* probably included some specimens of "*insulanus*." Cassin gives the wing-length of *flavoviridis* as three and two-tenths inches (81.28 mm.), female rather smaller, and since this dimension belongs only to the birds of the northern part of Central America, it is safe to restrict the type locality of *flavoviridis* to San Juan de Nicaragua.

I am not convinced of the advisability of maintaining "*insulanus*." Although Peters (1931, Auk, XLVIII, pp. 575-587) has shown that the birds breeding in the southern part of Central America, from southwestern Costa Rica and Panamá, average less in the length of the wing than birds from northwestern Costa Rica to northern Mexico, it appears that the average wing-length of each of the two supposed forms is within the variational limits of both and that a large proportion of specimens cannot be identified by this measurement. The following figures will show the problem.

I have not sufficient breeding material from the range of "*insulanus*" to give me original measurements for this form but Peters shows that males may have the wing 74-79 mm.; females, 71-78 (I have one female only 68.2 and one 69). Fifty-nine males of undoubtedly *flavoviridis* have the wing 74.5-83.75; twenty-seven females, 72.5-81. Of this series, twenty-three males and twenty-five females are within the maximum of "*insulanus*," a total of forty-eight out of eighty-six specimens unidentifiable by wing-length alone.

On the other hand, sixty specimens from Panamá and south across Colombia, Ecuador, and Perú to Bolivia, including many migrants in winter quarters, may be grouped as follows on the basis of wing-length.

		"Insulanus"	<i>Flavoviridis</i>	Doubtful
Panamá	26 ♂	=	7	14
	10 ♀		1	9
Colombia	2 ♀		1	1
	3 ♂		0	1
Ecuador	4 ♀		0	3
	7 ♂		0	4
	6 ♀		0	6
Perú	1 ♂		0	0
	1 ♀		0	1
Total	60	9	12	39

Using the measurements given by Peters for *flavoviridis* (differing slightly from my figures) and showing the males with wing 77–83 and females, 73–80, only six additional specimens of the series at hand would come within the restricted measurements of *insulanus* and the number of unidentifiable specimens would be reduced to thirty-three, still well over half of the total. Including the birds from the breeding range of a restricted *flavoviridis*, eighty-seven out of one hundred and forty-six specimens are unidentifiable.

Except for one female from Chicoral, Colombia, with a wing-length of only 69 mm., I have no specimen from anywhere south of Panamá that could confidently be referred to an "insulanus" on the basis of size.

I am unable to appreciate the relative prominence of the dusky line between the crown and the superciliary stripe as a character of diagnostic value in the separation of the two forms in question. This border is very variable throughout all Central American specimens and is as inconspicuous in some undoubtedly *flavoviridis* as in any supposed *insulanus* and, on the other hand, it is quite prominent in some summer birds from Panamá. Ridgway (1904, Bull. U. S. Nat. Mus., L, pp. 132, 147) described this line as heavier in *insulanus* than in *flavoviridis*; Peters (*loc. cit.*) reverses this diagnosis. Ridgway follows Bangs's original description of *insulanus* in crediting this form with duller coloration, but Peters makes no mention of such a character. There is considerable individual variation in intensity of coloration and I am unable to find any regularity in it.

In this connection, three specimens from Perú are worthy of particular mention. In size, wing-formula, and pattern these three birds show unquestionable relationship to *flavoviridis*, but they are very dull in coloration, being less brightly hued, even on the flanks and crissum, than some *olivaceus*. They agree with the description of an intermediate form, *hypoleucus*, under which they are discussed at greater length.

Although typical *flavoviridis* and typical *olivaceus* are very different in coloration, *flavoviridis* has all of its characters matched, at least singly, in such South American forms as *griseobarbatus*, *solimœnensis*, *vividior*, and *agilis*, and through them is in close relationship to *chivi* and *olivaceus*. In addition, the wing-formula of *flavoviridis* more nearly equals that of *olivaceus* than does that of any of the South American resident forms. In one extreme of development, the ninth (subouter) primary is fully as long as the sixth; in the other extreme it is no longer than the fifth. In *olivaceus*, the ninth may be longer or shorter than the sixth or subequal to it.

In final analysis, therefore, I find the distinctions between *flavoviridis* and "insulanus" too much overcome by individual variation to enable me to recognize both subspecies and I place "insulanus" in the synonymy of *flavoviridis*.

Records from Perú, all wintering birds, are from Huaynapata, Río Cadena, Monterico, Guajango, and Iquitos.

One Peruvian specimen, from Puerto Indiana, sexed as a female with gonads not enlarged, is dated May 27 but I am not sure that the date is correct. The plumage of the specimen is somewhat worn whereas in May it should be relatively fresh. Like *V. o. olivaceus*, this subspecies has a complete postnuptial (or incomplete postjuvenile) molt on its breeding grounds in August or thereabouts. On the other hand, wintering specimens taken from February to April usually show a molt of the wings and tail and often of at least parts of the head and body, and occasional skins from Central America of the same dates show the last vestiges of the replacement of wing and tail feathers. As in typical *olivaceus*, therefore, there appear to be an

incomplete postjuvenile molt, a complete postnuptial molt, and an incomplete prenuptial molt.

Vireo olivaceus hypoleucus van Rossem and Hachisuka

Vireo olivaceus hypoleucus VAN ROSEM AND HACHISUKA, 1937 (Sept. 30), Proc. Biol. Soc. Wash., L, p. 159—San Francisco Cañon, eastern Sonora, Mexico; ♂; Dickey Coll., Calif. Inst. Technology.

I have no topotypical material of this form and one specimen from Escuinapa, Sinaloa, that might be expected to belong here because of the locality, cannot be distinguished from numerous examples of *flavoviridis*.

However, three specimens from Perú (two from Santa Rosa, Río Ucayali, and one from Río Tavara, southeastern Perú) are markedly distinct from all other specimens of a large series from the breeding and winter ranges of *flavoviridis* in the manner ascribed to *hypoleucus*. In all respects, except for the weak stripes in the superciliary region, these three Peruvian birds are exactly intermediate between *flavoviridis* and *olivaceus*; the superciliary stripe and its dark upper border are as in *flavoviridis*. With this characterization, the three Peruvian birds probably belong to *hypoleucus*. That form has been known to be migratory and has been found in El Salvador while on migration but the winter home was not known. With the evidence here discovered, it is apparent that the winter range coincides, in part, with that of *flavoviridis* which I have also from Santa Rosa and Río Tavara.

One item in the original description of *hypoleucus* is puzzling. The lateral under parts and under tail-coverts are said to be yellower, less greenish, than in *flavoviridis*. Any approach toward *olivaceus* would need to show the reverse of this since *olivaceus* is much greener and less yellowish in those parts than *flavoviridis*, which is the case in the three birds from Perú that I assign tentatively to the northwest-Mexican form.

On the other hand, van Rossem and Hachisuka (*loc. cit.*) mention certain skins from Tamaulipas that they found even closer to *olivaceus*. None of the Tamaulipas birds I have is of this nature but it is

possible that there may be an area of intergradation between *flavoviridis* and *olivaceus* in northeastern Mexico from which my three birds may have traveled. Much more must be done before the status of the population in the whole of northern Mexico is fully understood. In the meantime, there is a name for an intermediate form that is apparently applicable to the three migrants in hand.

Vireo olivaceus forreri Madarász

Vireo forreri MADARÁSZ, 1885, Termész. Füzetek, IX, p. 85, Pl. VI—Tres Marias Islands; Hung. Nat. Mus.

I have nothing to add to the meagre information available about this bird except to note that a specimen from the Lawrence Collection, credited to "Ecuador" as a locality and "Alexander" as a collector, appears to belong to it. The wing is just over 81 mm. and the tail is 57, both measurements within the extremes of *flavoviridis*, but the superciliary markings are obsolete and the bird agrees well with five topotypical skins of *forreri*. If this assignment is correct and the locality of the specimen is authentic, we have here the first indication of the possible winter home of this insular form.

Vireo olivaceus chivi (Vieillot)

Sylvia chivi VIEILLOT, 1817, Nouv. Dict. Hist. Nat., nouv. éd., XI, p. 174—based on the "Contramaestre del Gaviero," Azara, II, p. 37, No. CLII—Paraguay = 24° – 36° S. lat., 57° – 60° long. W. of Paris = western Paraguay.

In view of the fact that Paraguayan birds of this species are rather variable and show a tendency in part toward the birds of northern Argentina and in part toward those of southeastern Brazil, the fixation of the name *chivi* on one or the other elements of the Paraguayan mixture becomes highly important.

Baird (1866, Smiths. Misc. Coll. 181, p. 338) found birds from various localities in South America showing two degrees of brightness in the yellow coloration of the sides and lower under parts and retained the name *chivi* for the duller of the two, *agilis* for the brighter, although he did not have a great deal of material on which to establish the limits of individual variation

and restricted ranges. Much later, Berlepsch (1889, Jour. für. Orn., XXXVII, p. 294) speaks of the paler western form to which he concludes the name *chivi* must be restricted, in distinction from *agilis*. Since mere restriction of type locality may not suffice to establish a restricted identity for *chivi*, I propose that "*Sylvia chivi* Vieillot" be recognized as identical with the birds of the Tucumán region of Argentina; i.e., with dull and relatively grayish-olive back, strong, blackish lines on either side of the crown, and relatively pale yellowish or even whitish flanks and under tail-coverts.

Birds of this sort are fairly consistent in northern Argentina, west of the Río Paraguay, and in southern Matto Grosso where they undoubtedly breed, and some of the Paraguayan birds, particularly those from northwestern localities, are in excellent agreement with the north-Argentine specimens. In northern Matto Grosso, an occasional specimen shows much more decided yellow on the under tail-coverts, on the flanks, and in a suffusion of the olive back, and these birds, also, are of such dates of collection that they must represent the breeding population in one extreme of its individual variation. Even with the yellow suffusion on the back and the bright yellow crissum and lateral under parts, these brighter birds are not precisely like *agilis* from more eastern parts of Brazil. The back of *agilis* is bright, but it is a greenish olive rather than yellowish and does not have the brownish or grayish tinge that dulls the dorsal color of the northern Matto Grosso series. Furthermore, there is no clear separation of these birds from *chivi* but rather a complete intergradation such that while the extremes are very different, a large number of specimens are equivocal.

It is true that the brightest examples are all from the more northern part of central Brazil and westward across northern Bolivia to central and southeastern Perú, but there are still brighter subspecies along the southern banks of the Amazon toward which these bright *chivi* may be considered as showing a trend. In any case, I am not quite convinced that any subspecific dis-

tinctions should be made in this entire series from central Perú to Matto Grosso, northwestern Argentina, and northwestern Paraguay.

There is abundant evidence that *chivi* is migratory from a considerable part of its breeding range. Aside from the fact that I have seen no specimens from this area collected between April 9 and August 31, I have numerous examples from localities within the ranges of other forms, extending as far northward as the Orinoco and showing various dates between March 17 and August 28, once as late as November 19. Many of these specimens show the grayish and whitish tones of the Argentine birds; some are a little brighter and may have come from the more northern breeding populations. Localities for these migrants will be listed among the specimens examined.

Some of the specimens from Bolivia and southern and central Perú are exactly like the northwest-Argentine birds and may be migrants from Argentina, but more show the brighter coloration of the north-Matto Grosso series. These, I believe, are part of the breeding population. It is impossible, however, to distinguish clearly between the two sets and it is quite possible that the entire series includes only members of a single population in its two extremes. There are present bright-backed birds with nearly white under tail-coverts and as dull-backed examples with the crissum strongly yellow, as well as regularly dull or brightly colored individuals.

This is the form that approaches *olivaceus olivaceus* so closely in every respect that a specimen combining certain extremes of color, size, and wing-formula would be quite unidentifiable, except perhaps by locality and date, not necessarily conclusive. A specimen of *olivaceus* is at hand from Chapada, Matto Grosso, dated February 14, and there are numerous specimens of *chivi* from the same locality covering various dates between September and April, including three February specimens. Likewise there are specimens of both subspecies from the upper Orinoco taken in March and April, from the Rio Tapajoz in March, from eastern Ecuador in No-

vember, and *chivi* in late August on the Rio Negro with *olivaceus* in the same region in early September—all instances of migrants of one from North America meeting, or nearly meeting, migrants from the South Temperate Zone on common ground, the winter home of both forms and, in many cases, the year-long home of still another form.

There seems to be little seasonal variation in the intensity of coloration of *chivi*. Some abraded examples still have the under tail-coverts decidedly yellowish; others have the region whitish. The differences are about the same as are shown by fresh examples, although very worn specimens, as is to be expected, have a generally duller appearance due to wearing away of some brighter parts of the feathers.

I am unable to get a very clear picture of the molt of *chivi* owing to certain irregularities for which I have not found the explanation. The form apparently breeds between October and February, possibly varying the actual time somewhat according to locality, earlier in the northern part of the breeding range. At the end of this period, some examples show considerable wear of the plumage but others are not very badly abraded. The first positive signs of prenuptial molt in the material at hand are shown in June specimens, more prominently in July birds, but there are evidences of molt in advanced stages through August and September. One specimen collected at Chapada, Matto Grosso, on November 11, is in postjuvenile molt, replacing head and body feathers and wing-coverts but not the remiges and rectrices. A second specimen from the same locality, dated in January, has nearly completed a molt, possibly also postjuvenile. A skin from Urucum, dated November 29, has the wings and tail quite fresh but has not lost quite all of the juvenal feathers on the back. It is quite possible that the examples in unworn plumage that are dated from February to May are young birds that have completed their postjuvenile molt. I have seen no certain adults in molt at this time except for occasional changes of a few scattered feathers that may have been accidentally lost, appar-

ently not in regular molt. None of the Argentine specimens at hand shows any regular molt.

A confusing feature of the plumage in numerous specimens is that the tertials and median pair (occasionally also the adjacent pair) of tail-feathers often are in a decidedly different condition of wear than the rest of the quills. If the wing and tail are in generally fresh condition, these inner feathers may be quite abraded or the opposite condition may be true. Such evidence as I can find suggests that these inner feathers are the first to molt, preceding the others by a sufficiently long period that they may be slightly worn before the rest of the molt begins. Probably most of the series of *chivi* shows so little difference in the amount of wear exhibited by the different series of quills that the distinction is not easy to determine at first glance. I have been unable to find a specimen of *chivi* actually molting the inner quills, but these feathers are comparatively fresher than the others in March, April, May, and June examples, comparatively more worn in birds taken during the breeding season (once in a July skin). From this it appears possible that there is a very modest postnuptial molt involving only the inner feathers of wing and tail, perhaps in February and March, months rather poorly represented in the series before me.

Dwight reported the postjuvenile molt of typical *olivaceus* as sometimes involving the tertials but not the rest of the wing. However, the specimens of *chivi* that I have with inner remiges and rectrices fresher than the remainder of wing and tail appear to be fully adult whereas the specimens with the remiges and rectrices of equal freshness often show some signs of immaturity. One of the birds in the last stages of postjuvenile molt is replacing the entire wing and tail along with the contour plumage. In other birds in the same molt, these feathers are quite fresh. The sequence of plumages in *chivi* thus involves an incomplete postjuvenile molt; the first winter plumage; a partial prenuptial molt of all but the inner remiges and rectrices; a partial postnuptial molt of only the inner remiges and rectrices. The inner flight-

feathers of the first winter plumage thus appear to be worn for over a year without replacement—probably the reason why these feathers sometimes show such an extreme condition of abrasion in contrast to the moderately worn state of the remaining plumage. Afterward, although the two sets of feathers are molted at different seasons, each is replaced once annually.

I have two specimens of *chiri* from the Río Seco, west of Moyobamba, and there are records from Anco, Yahuarmayo, and Yurimaguas that are presumably correctly assigned. Records of "*olivaceus*" from Chamicuros, Chayavitas, Huambo, and "Upper Ucayali" may belong to *chiri* which was not recognized by the recorders. Specimens from Guajango and Callacate, and from Pebas may have been migrant individuals of *chiri* or may have been residents of the separate forms occupying the respective areas as discussed on later pages.

Vireo olivaceus agilis (Lichtenstein)

Lanius agilis LICHTENSTEIN, 1823, Verz. Doubl. Berliner Mus., p. 49—Bahia; Berlin Mus.

Vireo bartramii SWAINSON in RICHARDSON, "1831" = Feb., 1832, Faun. Bor.-Amer., II, p. 235—Brazil and "South Carolina"; type from Brazil, lat. 12° S. in Mus. Univ. Cambridge, England.

The restriction of the name *chiri* to the pale birds of western Paraguay, northwestern Argentina, and adjacent regions, leaves the name *agilis* available for the brightly colored population of Bahia and contiguous territory. In comparison even with the brighter Matto Grosso and Peruvian specimens of *chiri*, the series of *agilis* presents certain distinctions that are prominent and fairly constant. The top of the head is clearer, lighter gray in *agilis*; the superciliary stripe is more purely whitish; the dark lines bordering the sides of the crown are a little less heavy; the sides of the breast, the flanks, and the under tail-coverts are clearer and brighter yellow; the outer margins of wing and tail are brighter and yellower.

Birds of this sort occupy the coastal region of Brazil south to the neighborhood of Rio de Janeiro and northward to the

Pará district, thence ranging westward along the south bank of the Amazon to the region between the Madeira and the Tapajoz rivers and crossing the Amazon to the neighborhood of Faro. In this western area there apparently is some intergradation with *chiri* although it is confusing owing to the fact that *chiri* migrates to, or through, this region. The intermediate specimens may be migrants from some area of intergradation between Matto Grosso and the Amazon or this zone of intergradation may lie exactly where these specimens were obtained. Future studies in the field should determine this point.

The birds from the state of Rio de Janeiro are not uniform, if three specimens (one a "Rio" trade skin) are characteristic. The trade skin and one bird from the Organ Mountains are nearest *agilis* but a specimen from Mt. Itatiaya is more like the birds from São Paulo and farther south. In this southeastern corner of Brazil, the population differs from both *agilis* and *chiri* sufficiently to deserve separate recognition, and since there is no available name for such a subspecies, it may be known as follows.

Vireo olivaceus diversus, new subspecies

Type from Roca Nova, Paraná, Brazil; altitude 930–1150 meters. No. 504,979, American Museum of Natural History. Adult male collected October 12, 1901, by A. Robert; original No. 669.

DIAGNOSIS.—Nearest to *V. o. agilis* of Bahia, Brazil, but with upper parts darker and duller; top of head Mouse Gray instead of Neutral Gray; back with a brownish tinge; superciliary stripe buffy instead of purer whitish; auriculars duller, more buffy olive than greenish; throat and breast often with a slight buffy tinge, less purely whitish; size averaging a little larger. Differs from *V. o. chiri* of western Paraguay by decidedly greener upper parts, sides, and flanks and more yellowish crissum; darker auriculars; less purely whitish superciliary stripe; and larger size.

RANGE.—Southeastern portion of Brazil from São Paulo to Rio Grande do Sul; Uruguay; possibly reaching extreme eastern Argentina and eastern Paraguay; it may be, in part, migratory as detailed elsewhere.

DESCRIPTION OF TYPE.—Top of head Mouse Gray carried over the hind neck and merging gradually into the color of the back; mantle Dark Citrine × Dull Citrine, brightening posteriorly to Serpentine Green on the rump

and upper tail-coverts. A prominent superciliary stripe near Tilleul Buff, with a strong blackish line separating it from the crown, both stripes reaching to the base of the bill; a dusky line across the lower part of the lores and a similar but less sooty postocular stripe; a buffy whitish subocular lunule; auriculars near Deep Olive-Buff anteriorly, darker and more brownish posteriorly; malar region Light Drab; chin, throat, and breast whitish, tinged with Tilleul Buff; belly whitish; sides of breast Light Yellowish Olive; flanks brighter, near Olive Yellow; under tail-coverts near Barium Yellow. Remiges dark brown, exteriorly margined with Yellowish Olive; upper wing-coverts like the mantle but greater series finely margined with light yellow; under wing-coverts, axillars and inner margins of remiges Barium Yellow \times Chalcedony Yellow; tail dark brown with a greenish tinge and with outer margins of the feathers like the rump; inner margins narrowly yellowish, more clearly defined toward the tips of the outer three pairs of rectrices. Maxilla (in dried skin) light brownish; mandible pale slaty; feet dark slate. Wing, 75 mm.; tail, 54.5; exposed culmen, 12.5; culmen from base, 18; tarsus, 17.5.

REMARKS.—Females like the males in color but averaging smaller; wing 68–71.5 mm. (σ^1 , 69–76.5); tail, 48–53.5 (σ^1 , 50.5–56.25).

Occasional specimens resembling this form are at hand from several localities unquestionably beyond the breeding range of the subspecies and it is impossible to say whether they actually belong to *diversus* or whether they are unusually dark though greenish examples of *chivi*. All of them, only nine skins, are dated between late February and October, and most of them are a little duller than the average skin of *diversus*, but they are a better match for the series of that form than for the series of *chivi*. All of the specimens of *diversus* from southeastern Brazil are dated between the end of September and early April and it seems likely that this subspecies also is migratory, at least in part. Consequently, the eight birds from outside the breeding range of this form may be considered for the present, at least, as migrant individuals of *diversus*.

I have mentioned earlier that the birds from the state of Rio de Janeiro appear to represent both *diversus* and *agilis* although a series, greater than I have at hand, will be necessary to determine the range of each in this state. With the meagre material

available, it would appear that *agilis* occupies most of the state but that *diversus* crosses the border from São Paulo in the neighborhood of the Serra do Itatiaya.

A similar problem exists in the vicinity of La Plata and Buenos Aires where there is a slight suggestion of the characters of *diversus* in the local population, although the greater resemblance is to *chivi* to which I have referred specimens from that region. Birds from Uruguay, eastern Paraguay, and Misiones, Argentina, agree best with *diversus*.

Vireo olivaceus solimoënsis Todd

Vireo caucae solimoënsis Todd, 1931 (July), Auk, XLVIII, p. 412—São Paulo de Olivença, Rio Solimoës, Brazil, σ^1 ; Carnegie Mus.

The population on the south bank of the Amazon, westward from the left bank of the Rio Madeira, is recognizably distinct from *agilis* by a number of characters. The size averages smaller, particularly the lengths of tail and bill (σ^1 , wing, 64–69 mm.; tail, 40–46; culmen from base, 15.25–17.75; σ^1 , wing, 60–64; tail, 40–42.5; culmen from base, 16–17); the coloration of the back is somewhat yellower and brighter; the top of the head is usually a little paler gray; and the dark line above the whitish superciliary stripe is decidedly weaker, often obsolete and at best not very blackish but, rather, sooty gray; the auriculars usually are grayish rather than light citrine. A single specimen from Rosarinho, on the left bank of the Rio Madeira, has this dusky line better marked than usual and one skin from Puerto Indiana, Perú, is similarly distinguished. Specimens from both banks of the lower Rio Negro, Brazil, are a little more strongly marked in this respect than most of the birds from south of the upper Amazon and reach a very little greater extreme of size (σ^1 , wing, 64–69; tail, 42–47; exposed culmen, 16.5–17.5; σ^1 , wing, 62–64.5; tail, 40.25–43; culmen from base, 15–17.75) but agree so well in most respects that they fall easily into this subspecies.

The same agreement is not shown by a series of specimens from Faro which I have discussed under *agilis* and *viridior*.

The Puerto Indiana specimen recorded

herewith is the first example of *solimoënsis* known from Perú. The early record of "*olivaceus*" from Pebas may belong here but it may belong properly to *olivaceus* or may be a migrant *chivi*. The form is likely to be found on the lower Ucayali but our collectors failed to find it there.

Vireo olivaceus vividior Hellmayr and Seilern

Vireo chivi vividior HELLMAYR and SEILERN, 1913 (Dec. 5), Verh. Orn. Ges. Bayern, XII, p. 315—Caparo, Trinidad; ♂; Munich Mus.

Vireo roraimae CHUBB, 1921, Birds Brit. Guiana, II, p. 393—Roraima [Venezuela]; British Mus.

The birds from northernmost Brazil, the Guianas, the whole of Venezuela, Trinidad, and the Santa Marta region of northern Colombia appear to represent a single, variable, but indivisible, subspecies. For this form, the earliest name is *vividior*. In general, *vividior* is characterized by relatively bright, often yellowish, green back; moderately light gray crown; broad whitish superciliary stripes, quite broad and white over the lores though sometimes distinctly grayish over the auriculars, and separated from the gray crown by a prominent blackish stripe; size relatively large, with the bill especially long (♂, wing, 66–77 mm.; tail, 45–57.25; culmen from base, 16.5–20.25; ♀, wing, 64.5–71; tail, 43–51.5; culmen from base, 17–19). The gray of the crown usually is carried well over the hind neck, as it is also in *solimoënsis* but not in *agilis*, *diversus*, nor *chivi*, but occasional specimens have this gray area shorter and the hind neck more nearly the color of the back. This feature is variable, however, and I have been unable to find it of service as a diagnostic character.

The color of the back also is variable. Some specimens from throughout the range have a duller olive mantle than the others, but in general the back is brighter and yellower than it is in *agilis*. The duller birds are found even on Trinidad, the type locality of *vividior*, as well as in other parts of the range.

I am puzzled as to the proper disposition of the birds of French Guiana, that have been separated under the name

griseolus. There is no doubt that at least some specimens from that country have the under parts overlaid with a light grayish wash more pronouncedly than birds from other regions. Nevertheless, some examples are not as strongly marked in this respect as are others and are not unlike specimens from Mt. Roraima, Venezuela, once separately described as "*roraimae*," or even occasional skins from the type locality of *vividior*. Most specimens of *vividior* have very definite gray on the lateral under parts though I have seen none that equals the extreme of "*griseolus*." One "Cayenne" trade skin at hand certainly cannot be distinguished from the average Venezuelan bird. Likewise three skins from the Rio Surumú, Brazil (Rio Branco region) and one British Guianan specimen are *vividior* and not "*griseolus*." It would appear, therefore, that if "*griseolus*" is to be maintained, its range cannot extend far beyond the bounds of French Guiana. Since there is an evident extreme development of grayish shading below in birds from this restricted region, *griseolus* may be recognized pending more complete knowledge regarding the distribution of the form.

Specimens from Faro, on the north bank of the Amazon, have been mentioned on a preceding page in the discussion of *agilis* to which they belong. They are somewhat closer to *vividior* than typical Bahian specimens but as a series agree best with the Bahian subspecies. The strong blackish lines above the pale superciliary stripes prevent their inclusion in *solimoënsis*. In this critical region north of the Amazon there is direct intergradation of *solimoënsis*, *agilis*, and *vividior*. Single specimens, in fact, may show apparent identity with the form of an outlying area, as mentioned for the birds of Faro, but there are numerous intergrades linking these extreme individuals with the rest of the population. I have, consequently, allocated the ranges according to the complexion of each series as a whole.

Hellmayr and Seilern (*loc. cit.*) assign a specimen from Marabitanas, upper Rio Negro, to *vividior*. I have no specimens from this general region, except migrant

individuals of *chivi* and *olivaceus*, but with a series from the neighborhood of Mt. Duida assignable to *vividior*, the upper Rio Negro may well belong in the range of the same form.

Lack of year-round material from any single locality and the probability that breeding and molting seasons may vary according to locality prevent a very exact statement regarding the molt of *vividior*. In the series from Santa Marta, numerous specimens indicate an incomplete postnuptial molt in July and August and, apparently, a complete postnuptial molt at the same time. May, June, and July specimens are relatively worn, July birds sometimes fresher than might be expected, and birds taken in January and February are fresh but without evident molt. On the other hand, skins from the region of Mt. Duida show a full molt at various dates from October to March.

The study of the molts in the entire species is complicated by the fact that there is no seasonal difference and very little "ageal" distinction. Juvenal birds are drab above, silky white below, like *olivaceus*. This plumage is speedily changed to the first winter plumage that is much like that of the adult though averaging brighter in dorsal coloration. The wings and tail also are much like those parts of the adult, averaging brighter on the margins and with the feathers softer in texture and frequently, especially the rectrices, narrower and more acute at the tips. They are carried over from the juvenal plumage and are barely, if quite, developed when the postjuvenile molt begins and are hence in no need of replacement at this time. There is every sort of intermediacy, however, and it is not always possible to tell a first winter bird from an adult. If the wing and tail are in full molt, however, it is fairly safe to conclude that the bird is adult, though possibly just leaving the first winter plumage. Occasionally, by accidental loss, the flight-feathers may be changed with the postjuvenile molt but this is very exceptional.

Vireo olivaceus griseolus (Todd)

Vireosylva chivi griseola TODD, 1924 (July 8), Proc. Biol. Soc. Wash., XXXVII, p. 124—Pied Saut. French Guiana; ♂; Carnegie Mus.

This form, apparently restricted to French Guiana, is not of unquestioned authenticity. Some discussion of its characters has been given in the treatment of *vividior*, on a preceding page. Compared with specimens of *vividior* from northern and western Venezuela and from Santa Marta, Colombia, there is good distinction but if the comparison is made with Trinidad birds (topotypical *vividior*) and specimens from Mt. Roraima ("roraimae" = *vividior*), the characters are not so pronounced.

Vireo olivaceus tobagensis Hellmayr

Vireo virescens tobagensis HELLMAYR, 1935 (Sept. 16), Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, pt. 8, p. 144—Island of Tobago; ♂; Field Mus. Nat. Hist.

The dull back, large size (including relatively heavy bill), paler under tail-coverts, and heavy, blackish lateral crown-stripes, separate this insular form from the subspecies of Trinidad and the mainland of South America.

Vireo olivaceus caucae (Chapman)

Vireosylva chivi caucae CHAPMAN, 1912 (July 23), Bull. Amer. Mus. Nat. Hist., XXXI, p. 159—Cali, Cauca, Colombia; ♂; Amer. Mus. Nat. Hist.

This subspecies is very like *chivi* in its dull coloration and some specimens are difficult to distinguish. In general, however, *caucae* is darker than *chivi* and has the auricular region more consistently grayish, though many *chivi* agree in this latter respect.

The extent of the range in Colombia needs further study when more material is available.

Vireo olivaceus griseobarbatus (Berlepsch and Taczanowski)

Vireosylva chivi griseobarbata BERLEPSCH and TACZANOWSKI, 1883, P. Z. S. London, p. 541—Chimbo, western Ecuador; ♂; Warsaw Mus.

This form resembles *vividior* in many respects, especially in the color of the back although this area appears to reach a somewhat lighter grayish extreme in the west-Ecuadorian birds. Many examples, however, are equally brightly yellowish green dorsally. The dark lines bordering the

crown laterally may average a little heavier in *griseobarbatus*. On the under parts, the west-Ecuadorian form has the flanks less noticeably grayish but more broadly and strongly yellowish. The size averages a little smaller (♂, wing, 65–71.5; tail, 45.5–52.5; culmen from base, 16–18.25; ♀, wing, 62.5–69.5; tail, 44–47.5; culmen from base, 17–19) but there is considerable overlap as there is between various other forms.

The amount of bright yellow exhibited on the under parts by the brightest examples is as much as is shown by various specimens of *flavoviridis*, although the upper parts, the lateral crown-stripes, and the measurements are very different in the two forms. In these respects, other subspecies show greater resemblance to one or the other.

The dusky mystacial stripe ascribed to this form by the original describers is no more than a slightly dusky shading of the entire malar region such as is found in certain examples of various other forms of the species. Perhaps the type may have a faint indication of fine, blackish tips on a few feathers in the malar line as exhibited by a bird from the Isla La Plata, but this is too inconspicuous to have led to any emphasis on it as a taxonomic character. There is no resemblance to the *altiloquus* style of marking. A paratype from Chimbo, kindly lent me several years ago by the authorities of the Frankfort Museum, agrees perfectly with other west-Ecuadorian specimens in the series now before me.

In northern Perú, in the middle Marañón Valley, between the Central and Western Andes, there is a population that has been referred by authors to *griseobarbatus* or *chivi* but which belongs properly to neither. Since it is recognizably distinct it may be known as follows.

Vireo olivaceus pectoralis, new subspecies

TYPE from Pucará, Río Huancabamba, northern Perú; altitude 2850 feet. No. 186,051, American Museum of Natural History. Adult male collected September 26, 1924, by Harry Watkins; original No. 8612.

DIAGNOSIS.—Nearest to *V. o. griseobarbatus* of western Ecuador from which it differs by

having the throat and breast noticeably tinged with grayish buff, rather sharply defined from the white on the middle of the belly; auriculars duller, more grayish olive, less citrine; flanks less broadly and brightly greenish or yellowish; under tail-coverts usually deeper yellow (when *griseobarbatus* approaches *pectoralis* in this respect the sides and flanks are proportionately brighter than usual); size averaging larger; back usually darker and duller green; lateral borders of crown more narrowly blackish.

RANGE.—Middle Marañón Valley of northern Perú.

DESCRIPTION OF TYPE.—Top of head between Neutral Gray and light Mouse Gray; a broad superciliary stripe, extending from the nostrils to above the posterior half of the auriculars, whitish anteriorly, tinged with pale gray posteriorly; this stripe separated from the gray of the top of the head by a narrow blackish line; lores, below the superciliary stripe, dusky gray; postocular space a little paler gray. Malar region light Mouse Gray, noticeably darker than the throat; a whitish subocular lunule; auriculars anteriorly pale grayish, posteriorly Grayish Olive. Back between Yellowish Olive and Yellowish Citrine, noticeably (but not very sharply) defined from the gray of the nape; rump and upper tail-coverts a little brighter than the mantle. Chin, throat, and breast buffy Smoke Gray, rather sharply defined from the pure white of the belly; sides of the breast dull Light Yellowish Olive; flanks, where largely concealed by the closed wings, Light Yellowish Olive × Yellowish Citrine; exposed portion of the flanks slightly washed with grayish; under tail-coverts between Citron Yellow and Amber Yellow. Remiges Chaetura Drab with outer margins Primrose Yellow or Naphthalene Yellow; under wing-coverts and axillars Citron Yellow × Amber Yellow; bend of wing Marguerite Yellow; upper wing-coverts Chaetura Drab with the outer margins of the lesser and median series like the mantle, the outer margins of the greater series Light Yellowish Olive (Olive Yellow on extreme outer edge), of the primary-coverts dark Yellowish Olive, and of the alula Citrine Drab; rectrices dull Yellowish Olive with outer margins Light Yellowish Olive and inner margins Barium Yellow. Wing, 73 mm.; tail, 53; exposed culmen, 12.75; culmen from base, 18; tarsus, 18.

REMARKS.—Two birds from Río Seco, west of Moyobamba but east of the Central Andes, do not belong to this form but are distinctly closer to *chivi* although one of them has the under tail-coverts brighter than the other and may show a trend toward the Marañón Valley form. Compared with *chivi*, *pectoralis* is brighter green on the back, more intensely yellow on the crissum, brighter on the outer edges of wing and tail, more decidedly buffy on the

pectoral region, and usually has a longer and more slender bill.

It is interesting to note that the range of the species is carried from western Ecuador to the Middle Marañón Valley, leaving the western side of the Western Andes of Perú apparently untenanted, in much the same manner as I have described for *Elaenia flavogaster*. (Cf. Amer. Mus. Novitates, No. 1108, p. 1.)

In certain ways, *pectoralis* links *chivi* with *griseobarbatus* but shows less direct relationship to *solimoënsis* with which it is connected through *vividior* and the intermediate population of the Rio Negro.

The records from Bellavista and Perico undoubtedly belong to *pectoralis*. Records of "olivaceus" from Guajango and Callacate, if referring to resident birds, should belong to *pectoralis* but may actually be migrants of *chivi* or *olivaceus*. Stolzmann noted their differences from Huambo birds but without the specimens it is impossible to assign the records correctly.

SPECIMENS EXAMINED

V. o. olivaceus.—

UNITED STATES:

(large series from numerous localities).

GUATEMALA:

Panajachel, 1 ♂;
Vera Paz, 1 (?);
"Guatemala," 4 (?).

NICARAGUA:

Matagalpa, 1 ♀;
Volcan de Chinandega, 1 ♂.

COSTA RICA:

Bonilla, 1 ♀;
Miravalles, 1 ♂, 1 (?).

PANAMÁ:

(Cocoplum, Wilcox Camp, Río Calovevora, Almirante, Boquete, Cebaco Is., Brava Is., and Panamá Railroad), 10 ♂, 4 ♀.

COLOMBIA:

Santa Elena, 1 ♀;
Villavicencio, 1 ♀;
Chicoral, 1 ♂;
Buritaca, 1 ♂;
"Bogotá," 6 (?).

VENEZUELA:

Mérida, 1 ♂, 1 (?);
Culata, 1 ♀;
El Valle, 1 ♂, 1 ♀, 1 (?);
El Escorial, 2 ♀;
Sierra Nevada, 1 ♂;
Río Orinoco, Nericagua, 2 ♂;
mouth of Río Ocamo, 1 ♀;
Boca de Sina, Río Cunucumá, 2 ♀;
Mt. Duida, Esmeralda, 3 ♂, 2 ♀;
Playa del Río Base, 8 ♂, 4 ♀, 2 (?);

Foothills Camp, 1 ♀;
Valle de los Monos, 1 ♂, 2 ♀;
Pié del Cerro, 2 ♂;
Río Pescada, 1 ♀;
Caño Seco, 1 ♀.

ECUADOR:

Río Suno, above Avila, 1 ♀;
lower Río Suno, 3 ♂, 3 ♀;
mouth of Río Curaray, 4 ♂.

PERÚ:

Río Negro, west of Moyobamba, 1 ♂, 1 ♀.

BRAZIL:

Rio Negro, Santa Maria, 1 ♂, 2 ♀;
Muirapinimá, 1 ♀;
San Gabriel, 2 ♂;
Rio Tapajoz, Aramanay, 1 ♂, 1 ♀;
Matto Grosso, Chapada, 1 ♂, 1 ♀.

V. o. forsteri.—

MÉXICO:

Tres Marias Islands, María Madre, 4 ♂,
1 (?).

ECUADOR:

"Ecuador," 1 (?).

V. o. flavoviridis.—

MÉXICO:

Tamaulipas (Victoria, Tampico, and Xicotencatl), 3 ♂;
Sinaloa, Escuinapa, 1 (?);
Tepic, Real de la Yesca, 1 ♂;
Vera Cruz, Paso del Toro, 1 ♂;
Nuevo Leon (Boquilla, Boque Negro, and San Pedro Mines), 8 ♂, 3 ♀;
Jalisco (Guadalajara, Barranca del Lago, Salsipuedes, and La Laja), 4 ♂;
Tehuantepec, Santa Efigenia, 1 ♂;
"Mexico," 1 (?).

GUATEMALA:

(Panajachel, Finca El Cipres, Progreso, Finca Sepacuite, Carolina, La Perla, Hacienda California, Finca Chamá, Alta Vera Paz, and "Guatemala"), 29 ♂,
28 ♀, 5 (?).

NICARAGUA:

(León, Volcán Viejo, and Matagalpa), 5 ♂, 3 ♀, 1 (?).

COSTA RICA:

(Agua Caliente, Miravalles, San José, Buenos Aires, Mt. Aguacate, Bebedero, Aquinares, Irazú, and Las Cañas), 19 ♂,
8 ♀.

PANAMÁ:

Juan Mina = Alhajuela, Boquete, Cebaco Is., Santa Fé (Veraguas), Wilcox Camp, Agua Dulce, La Colorado (Santiago), Chitrá, Almirante, Chiriquí, Balboa, (Lion Hill), Corozal, Saboga Is., San Miguel Is., San José (Pearl Islands), Pedro Gonzales (Pearl Islands), Cerro Montoso, Cerro Largo, and "Panamá"], 27 ♂, 10 ♀, 1 (?).

COLOMBIA:

Chicoral, 2 ♀;
"Bogotá," 1 (?);
Santa Marta, Bonda, 1 ♂, 6 (?);
Buritaca, 1 ♂.

ECUADOR:

El Loreto, 2 (?) ;
 lower Río Suno, 2 ♂, 3 ♀ ;
 below San José, 1 ♂, 2 ♀ ;
 mouth of Río Curaray, 1 ♂, 1 ♀ ;
 mouth of Lagarto Cocha, 1 ♂ .

PERÚ:

Astillero, 1 ♀ ;
 Candamo, 1 ♂, 1 ♀ ;
 La Pampa, 1 ♂ ;
 Río Tavara, 1 ♂ ;
 Río Ucayali, Santa Rosa, 1 ♂, 3 ♀ ;
 Perené, 1 ♂ ;
 Puerto Indiana, 1 ♀ .

BOLIVIA:

Tres Arroyos, 1 ♂ ;
 mouth of Río San Antonio, 1 ♀ ;
 Prov. Sara, "High Forest," 1 ♀ .

V. o. *hypoleucus*.—

PERÚ:

Río Ucayali, Santa Rosa, 1 ♂, 1 ♀ ;
 Río Tavara, 1 ♂ .

V. o. *caucae*.—

COLOMBIA:

Cali, 1 ♂ (type), 2 ♀ ;
 Palmira, 1 ♀ ;
 east of Palmira, 1 ♂ ;
 Las Lomitas, 1 ♂ ;
 Caldas, 1 ♂ ;
 Los Cisneros, 1 ♀ ;
 Media Luna, 1 ♀ ;
 "Yuntas" (? = Juntas de Tamaná), 1 ♂ ;
 "Bogotá," 2 (?).

V. o. *griseobarbatus*.—

ECUADOR:

Chimbo, 1 ♀ (paratype)¹ ;
 Mindo, 4 ♂, 1 ♀ ;
 Esmeraldas, 3 ♀ ;
 Intag, 2 ♀ ;
 Paramba, 2 ♂, 1 ♀ ;
 San Nicolas, 1 ♂ ;
 Gualea, 1 ♂, 1 ♀ ;
 San Javier, 1 ♂ ;
 Salado, 1 ♂ ;
 Portovelo, 2 ♂ ;
 Pullango, 1 ♂ ;
 Cuaque El Destino, 2 (?) ;
 Chone, 1 ♂ ;
 Bahia de Caraques, 1 ♂ ;
 coast of Manaví, 1 ♀ ;
 Chongon Hills, 1 ♂ ;
 Isla La Plata, 3 ♂, 3 ♀ ;
 Isla de Puna, 1 ♂, 1 (?).

V. o. *pectoralis*.—

PERÚ:

Pucará, 1 ♂ (type), 1 ♀ ;
 Huarandosa, 1 ♂, 1 ♀, 1 (?) ;
 Perico, 2 ♂, 2 ♀ ;
 San Ignacio, 2 ♂, 2 ♀, 1 (?) ;
 Sauces, 1 ♂, 1 ♀ ;
 Jaén, 1 ♂, 2 ♀ ;
 Lomo Santo, 1 ♀ ;

Hacienda Limón, 2 ♀³ .

V. o. *chivi*.—

PERÚ:

Río Seco, west of Moyobamba, 1 ♀, 1 (?) ;
 Tulumayo, 2 ♂, 2 (?) ;
 Huiro, 1 (?) ;
 Maranura, 1 ♂ ;
 Idma, 1 ♂ ;
 Santa Ana, 1 ♂, 1 ♀ ;
 San Miguel, 1 ♂, 1 (?) ;
 San Miguel Bridge, 2 ♂ ;
 La Pampa, 1 ♂ ;
 Río Tavara, 4 ♀ ;
 San Ramón, 1 ♂³ ;
 Vista Alegría, 1 ♀³ ;
 Huachipa, 1 ♂³, 1 ♀³ .

BOLIVIA:

Vermejo, 1 ♂, 1 ♀ ;
 mouth of Río San Antonio, 1 ♂ ;
 Yungas, Cochabamba, 1 ♀ ;
 Mapiri, 1 (?) ;
 Camp-woods, Prov. Sara, 1 ♀ ;
 Camp, 750 m., Prov. Sara, 1 ♂ ;
 Todos Santos, 1 ♂³ ;
 Buena Vista (Santa Cruz), 1 ♀³ .

ARGENTINA:

Embarcación, 3 ♂, 3 ♀ ;
 above San Pablo, 2 ♂ ;
 Tapiá, 1 ♂⁴ ;
 Rosario de Lerma, 1 ♂ ;
 Barracas al Sud, 1 ♂, 1 ♀ ;
 Tigre, Buenos Aires, 1 ♂ ;
 La Plata, 1 ♀ .

PARAGUAY:

Zanja Morotí, 3 ♂ ;
 east of Caaguasú, 3 ♂ ;
 east of Tumbes, 1 ♀ ;
 upper Iguazú River, 1 ♂ ;
 Puerto Pinasco, 1 ♂⁴ ;
 "Paraguay," 1 ♂ .

BRAZIL:

Matto Grosso, Barão Melgaço, 1 ♀, 1 (?) ;
 Utariaty, 1 ♂ ;
 Tapirapoañ, 1 ♂, 1 ♀ ;
 Belvedere de Urucum, 2 ♂ ;
 Urucum, 3 ♂, 2 ♀, 1 (?) ;
 Corumbá, 2 ♂ ;
 Caxirá Mirim, 1 ♂ ;
 Chapada, 13 ♂, 6 ♀, 1 (?) ;
 Rio Machados, Jamarysinho, 1 ♀ ;
 Rio Madeira, Porto Velho, 1 ♀, 1 (?) ;
 Borba, 3 ♂, 7 ♀ ;
 Igarapé Auará, 1 ♂ ;
 Rosarinho, 1 ♂ ;
 Villa Bella Imperatriz, 1 ♂ ;
 Rio Tapajoz, Aramanay, 2 ♂, 3 ♀, 1 (?) ;
 Igarapé Brabo, 2 ♀ ;
 Rio Xingú, Tapará, 1 ♂ ;
 Rio Grande do Sul, Sinimbú, 2 ♂ ;
 Rio Negro, Manaos, 1 ♂ ;
 Yucabí, 3 ♀, 1 (?) ;

¹ Specimen in Senckenbergian Museum, Frankfort a. M., Germany.

² One female exchanged with Senckenbergian Museum, Frankfort a. M., Germany.

³ Specimens in Field Museum of Natural History, Chicago.

⁴ Specimen in U. S. National Museum, Washington.

Tatú, 2 ♂, 3 ♀;

Rio Uaupés, Ianarete, 2 ♀, 1 (?) ;
Tahuapunto, 1 ♀.

VENEZUELA:

Río Cassiquiare, Solano, 3 ♀, 1 (?) ;
mouth of Río Ocamo, 1 ♂, 1 ♀ ;
opposite mouth of Ocamo, 1 ♂ ;
Buena Vista, 1 (?) ;
Mt. Duida, Píe del Cerro, 1 ♀ ;
Río Orinoco, Suapure, 1 ♂ .

ECUADOR:

mouth of Río Curaray, 2 ♂ ;
below San José de Sumaco, 1 ♀ .

V. o. diversus. —

BRAZIL:

Paraná, Roca Nova, 6 ♂ (incl. type), 2 ♀ ;
Guayra, 1 ♀, 2 (?) ;
Porto Almeida, 2 ♂, 3 ♀ ;
Corvo, 4 ♂, 2 ♀, 2 (?) ;
São Paulo, Ubatuba, 1 ♀ ;
Itapura, 1 ♂ ;
Fazenda Cayoá, 2 ♂ ;
Estação de Rio Grande, 2 ♂ ;
São Sebastião, 1 ♂ ;
Río de Janeiro, Mt. Itatiaya, Monte Serrat,
1 ♂ ;
Río Grande do Sul, Nonohay, 3 ♂, 2 ♀ ,
1 (?) ;
Lagôa Vermelha, 2 ♂ ;
Erebango, 1 ♂, 1 (?) ;
Sananduva, 1 ♂ ;
Sinimbú, 4 ♂ ;
São Francisco de Paula, 5 ♂, 2 ♀, 1 (?) ;
Lagôa de Forno, 1 ♂, 1 ♀ ;
Matto Grosso, Chapada, 3 ♂¹ ;
Río Tapajoz, Igarapé, Amorin, 1 ♀¹ ;
Igarapé Brabo, 1 ♀¹ .

URUGUAY:

Rocha, Lazcano, 1 ♂, 1 ♀ ;
Rocha, San Vicente, 4 ♂ .

ARGENTINA:

Misiones, Río Paraná, 1 ♂², 1 ♀² ;
Caraguatay, 3 ♂² ;
Iguazu, 3 ♂² ;
Puerto Segundo, 1 ♂² ;
Eldorado, 1 ♂², 1 ♀² .

PARAGUAY:

Abai, 2 ♂, 1 ♀, 2 (?) .

V. o. agilis. —

BRAZIL:

Río de Janeiro, Organ Mts., La Raiz, 1 ♀ ;
"Río" trade skin, 1 (?) ;
Bahia, Bahia, 3 ♂, 2 ♀, 1 (?) ;
Tambury, 1 ♂ ;
Río Gongogy, 1 ♂, 1 (?) ;
Boa Nova, 1 ♂ ;
Orobó, 1 ♂ ;
"Bahia" trade skin, 1 (?) ;
Espírito Santo, Baixo Guandú, 1 ♂, 1 ♀ ;
Ceará, Joazeiro, 1 ♂, 1 ♀ ;
São Pedro, 1 ♂ ;
"Ceará" trade skin, 1 (?) ;
Goyaz, Río Araguaya, 1 (?) ;

¹ Placed here with a query.

² Specimens in Field Museum of Natural History, Chicago.

Maranhão, Ilha São Luiz, Anil, 2 ♂ ;
São José, 2 ♂, 1 ♀ ;

Rosario, 1 (?) ;
Parnahyba, 1 ♂ ;
Codó, 1 ♂ ;
As Mangueras, 1 ♂ ;
Pará, 1 ♂ ;
Isla Marajo, Fazenda Teso S. José, 1 ♀ ;
Río Tocantins, Baião, 1 ♂, 1 ♀ ;
Mocajuba, 5 ♂, 2 ♀ ;
Río Xingú, Porto de Moz, 1 ♂, 1 ♀ ;
Tapará, 1 ♀, 1 (?) ;
Río Tapajoz, Santarem, 1 (?) ;
Igarapé Brabo, 1 ♂, 2 ♀, 4 (?) ;
Igarapé Amorin, 1 ♀ ;
Aramanay, 1 ♂, 1 ♀, 1 (?) ;
Río Amazonas, Villa Bella Imperatriz,
4 ♂, 1 ♀ ;
Río Jamundá, Faro, 1 ♂, 2 ♀ ;
São José, 3 ♂, 1 ♀ ;
Serra do Espelho, 2 ♂, 1 ♀ ;
Castanhal, 2 ♂ ;
Boca R. Paratucú, 2 ♂, 1 ♀ ;
Lago Uaimy, 1 ♂, 1 ♀ ;
Maracana, 2 ♂ .

V. o. solimoënsis. —

BRAZIL:

Río Madeira, Rosarinho, 1 ♀ ;
Río Amazonas, Teffé, 7 ♂, 4 ♀ ;
Río Negro, Manaos, 17 ♂, 8 ♀ ;
Muirapinimá, 2 ♂, 2 ♀ ;
Igarapé Cacao Pereira, 17 ♂, 13 ♀, 2 (?) .

PERÚ:

Apayacu, 1 ♂ .

ECUADOR:

mouth of Río Curaray, 1 ♀ .

V. o. griseolus. —

FRENCH GUIANA:

Pied Saut, 1 ♂ ;
Cayenne, 1 "♀" [? = ♂] ;
"Cayenne" trade skin, (?) .

V. o. vividior. —

TRINIDAD:

Princetown, 5 ♂, 2 ♀ ;
Pointe Gourde, 1 ♂ ;
Caparo, 1 ♂, 3 ♀ .

MONOS ISLAND: 1 ♂ .

VENEZUELA:

Cristóbal Colón, 12 ♂, 3 ♀ ;
Cocallar, 1 ♀ ;
San Antonio, 2 ♂, 2 ♀ ;
Rincón San Antonio, 1 ♂, 1 ♀ ;
Barbacoas, 1 (?) ;
Puerto La Cruz, 1 ♂ ;
Cumanacoa, 1 ♂ ;
Plain of Cumaná, 1 ♂, 1 ♀ ;
Sal-si-puede, 2 ♂, 4 ♀ ;
Campos Alegre Valley, 1 ♂ ;
inland from Puerto Cabello, 1 ♂ ;
Quebrada Seca, 1 ♂ ;
Ejido, 1 (?) ;
San Esteban Valley, 1 ♂ ;
Río Orinoco, Caicara, 5 ♂, 1 ♀ ;
Suapure, 2 ♂, 1 ♀ ;
Altagracia, 1 ♂ ;
Ciudad Bolívar, 2 ♂, 2 ♀ ;

Lalaja, 1 ♀;
 Ayacucho, 1 ♂, 1 ♀;
 Mt. Duida, Caño León, 1 ♂;
 Playa del Río Base, 2 ♂;
 Cerros de Savana, 1 ♂;
 Esmeralda, 1 ♀;
 [western] foot of Duida, 1 ♀;
 Río Caura, La Unión, 2 ♂, 3 ♀;
 La Prisión, 2 ♀, 1 (?);
 Maripa, 2 ♂, 3 ♀;
 Mérida, 4 (?);
 El Valle, 2 ♂, 2 (?);
 Escorial, 1 ♂, 1 ♀;
 Mt. Roraima, 1 ♂, 1 ♀;
 Arabupú, 2 ♂.

BRITISH GUIANA:
 no other locality, 1 (?).

COLOMBIA:

Santa Marta, Bonda, 15 ♂, 1 ♀, 15 (?);
 Cacagualito, 1 ♂, 1 ♀, 1 (?);
 Quebrada Concha, 1 ♀, 1 (?);
 Santa Marta, 1 ♀;
 N. Santander, Cúcuta, 1 (?)¹.

BRAZIL:

Rio Surumú, Frechal, 3 ♂.

V. o. tobagensis.—

TOBAGO:
 Plymouth, 2 ♂, 1 ♀;
 Mariah, 1 ♂, 1 ♀;
 Mondiland, 2 ♂;
 Lecito, 1 ♂;
 Richmond, 1 ♂;
 Waterloo, 1 ♂;
 Castare, 2 ♂, 2 ♀;
 Tobago, 7 ♂², 2 ♀², 1 (?)².

Vireo gilvus leucophrys (Lafresnaye)

Hylophilus leucophrys LAFRESNAYE, 1844, Rev. Zool., p. 81—Colombia = Bogotá region; Mus. Comp. Zoöl.

Vireo g. leucophrys is exemplified by the birds from the Eastern Andes of Colombia, as is in accordance with the geographical position of the type locality. Compared with specimens from the Central and Western Andes of the same country, the eastern birds are distinctly more brownish on the back and have also a browner tone on the top of the head without the little tinge of drab that is present in the western examples. Old "Bogotá" skins show this to the most pronounced degree but fresher specimens also are recognizable on this character. The whitish throat patch is relatively restricted in the birds from both these areas in noticeable contrast to the more extended white area in *mirandae* of northern Venezuela and *josephae* of west-

ern Ecuador. The lower under parts are variable but often relatively deep yellow, again in contrast to the paler yellow belly of *mirandae* but not certainly distinguishable from the west-Colombian birds in this respect.

Examples from the Mérida region of Venezuela agree in most respects with the east-Colombian birds but have the belly more regularly deep yellow. Specimens from Santa Marta, Colombia, on the other hand, agree in general except that the belly is rather regularly at the pale extreme of coloration. Nevertheless, in comparison with *mirandae*, I believe both the Méridan and Santa Martan series belong with *leucophrys* rather than with the north-Venezuelan form, though extensive series of perfectly fresh examples from all the areas under consideration might show the desirability of breaking up this population into several units.

The differences in intensity of yellow on the lower under parts do not appear to be due to any differences in the antiquity of the specimens but may sometimes be due to relative degrees of wear or abrasion of the plumage. Some of the oldest skins have the belly as deeply yellow as more recently collected specimens. On the other hand, there is much individual variation in this respect to the extent that an occasional specimen of a number of the different subspecies of the group is exceptionally grayish on the back, dark grayish on the cap, and relatively whitish below. This variation I have been unable to associate with any factors of distribution or taxonomic distinction.

Three skins from eastern Ecuador agree fairly well with the east-Colombian specimens and carry the range of *leucophrys* southward along the eastern face of the Eastern Andes to near the Peruvian boundary. Similarly, five birds from the Junín region of central Perú are so similar that I refer them also to the same form together with a specimen from Chinchao which I collected some years ago. Numerous skins from the Western Andes of northern Perú, between the Marañón and this cordillera and on the western side of the same range, are neither *leucophrys* nor *josephae*

¹ Specimen in Cúcuta Museum.

² Specimens in Field Museum of Natural History, Chicago.

as will be discussed on a later page. On the other hand, a single bird from La Lejia, east of the Middle Marañón, is not referable to this western form but agrees better, though not completely, with *leucophrys* to which it may be provisionally referred. The top of the head is not quite so definitely brownish, nor is the back, but the dorsal coloration is relatively light in tone and the general appearance much like that of a bird from San Augustin, Colombia.

Records from Garita del Sol and Paltay-pampa, Junín, presumably belong with *leucophrys*. Urubamba Valley specimens, however, show a tendency toward the Bolivian *laetissimus* as will be discussed under that form.

I follow the most recent treatment of *leucophrys* in considering it a subspecies of *gilvus*. Ridgway long ago [1872, Amer. Jour. Sci., (3) IV, p. 456] suggested this relationship because of the intermediate characters presented by birds from Orizaba, Mexico, later described as *Vireo amauronotus* by Salvin and Godman (1881, Biol. Cent. Amer., I, p. 193). Recently, two forms have been described from other parts of Mexico as being intermediate, in different degrees, between *amauronotus* and the gray-backed forms nearest *gilvus* [*Vireo gilvus connectens* van Rossem, 1940 (April 30), Trans. San Diego Soc. Nat. Hist., IX, p. 77—Chilpancingo, Guerrero, Mexico; *Vireo gilvus eleanorae* Sutton and Burleigh, 1940 (July), Auk, LVII, p. 399—six miles north of Jacala, Hidalgo, Mexico]. With this evidence, there seems to be no good reason to keep *leucophrys* and *gilvus* specifically apart. The pattern throughout the various forms here brought together is uniform and the only differences of importance lie in the variable preponderance of gray, brown, or greenish olive on the back, the depth and tone of the color on the top of the head, the amount of yellow on the under parts, and the extent and purity of white on the throat. The various degrees of difference in these factors in varying combinations furnish the bases for the taxonomic distinctions that appear to be tenable.

The distribution of the various forms in Middle America is very imperfectly known and is in need of more careful study than I

am able to give it with the limited material available from that region. There is a hiatus between the demonstrable range of *chiriquensis* and that of the nearest representative of the species in Colombia. There is no known resident form in Nicaragua, Honduras, El Salvador, Guatemala, or British Honduras although *gilvus* and *swainsonii* reach Guatemala and El Salvador in winter. In Mexico, six different subspecies have been distinguished whose type localities are situated, respectively, in Chiapas, Guerrero, Vera Cruz, Hidalgo, Baja California, and Chihuahua. The Vera Cruz and (presumably) the Chiapas forms are unquestionably closest to *chiriquensis* and its South American allies; the Chihuahua form seems to be nearest to *swainsonii*; the two others are intermediate, as noted above. The limits of the range of each of these forms has yet to be determined and it is not beyond hope that some of the existing gaps in the specific range outside of Mexico will also be closed by future collections.

Vireo gilvus laetissimus (Todd)

Vireosylva leucophrys laetissima TODD, 1924 (July 8), Proc. Biol. Soc. Wash., XXXVII, p. 124—Incachaca, Bolivia; ♂; Carnegie Mus.

Five birds from Bolivia, four from the type locality of *laetissimus*, show reasonable distinction from *leucophrys* by reason of their lighter caps which are less brownish than in *leucophrys* and less contrasting with the back which, in turn, is also less brownish and more greenish than in *leucophrys*. The under parts are rather paler yellow and the white of the throat is a little more broadly extended over the upper chest though not as pronouncedly as in *josephae*, *mirandae*, or *chiriquensis*.

Specimens from the Urubamba Valley and southeastern Perú approach this form in respect to the reduction of brownish coloration of the back and the increase of white on the lower throat, and some of the specimens also show the paler yellow under parts and a slightly lighter cap. They are not strictly referable to *laetissimus* but are different from the Junín (and other) specimens of *leucophrys* and may be as-

signed to the Bolivian form to which they show the nearest approach.

Vireo gilvus josephae Sclater

Vireo josephae SCLATER, 1859, P. Z. S. London, p. 137, Pl. CLIV—Pallatanga, western Ecuador; ♂, ♀ cotypes in British Mus.

The birds of western Ecuador are distinguished from those of adjacent parts of most of Colombia, eastern Ecuador, and Perú by their dark caps (usually dark Chaetura Drab), dark olive backs, and extensive white area on the throat, usually carried well over the chest where, however, there may be some yellowish edging or flammulation. The extent of this white usually is as great as in *mirandae* although the latter form has a distinctly paler cap.

This form is almost restricted to western Ecuador. Hellmayr (1935, Field Mus. Nat. Hist. Publ., Zool. Ser., XIII, part 8, p. 156) assigned a skin from Ricaurte, southwestern Colombia, to this form as may, indeed, be justifiable; my notes on the specimen, made some years ago, specify the color of the cap as darker than in other Colombian skins examined at the same time. However, I do not believe that Palambra, Perú, belongs in the range of *josephae*. A number of specimens from that locality are recognizably distinct from *josephae* as well as from *leucophrys* and agree better with the birds from the Middle Marañón Valley, between the Western and Central Andes of northern Perú. These birds are, in a sense, intermediate between *josephae* and *leucophrys* as might be expected from the geographical position of their range but they constitute a relatively compact population with characters as constant as those of any of the other recognized forms and differ, as such, from another intermediate population in central and western Colombia. To call both these intermediate populations by the same name or to refer them to one or another of the forms to which they approximate would obscure their distinctions as well as their relationships. Accordingly, I believe that both populations should be given separate names as detailed below.

With this treatment, there are no records from Perú that can be assigned to *josephae*.

Vireo gilvus maranonicus, new subspecies

TYPE from Chaupe (near San Ignacio, Río Chinchipe), northern Perú; altitude 6100 feet. No. 181,593, American Museum of Natural History. Adult male collected February 3, 1923, by Harry Watkins; original No. 6908.

DIAGNOSIS.—Similar to the lighter examples of *V. g. josephae* of western Ecuador in respect to the color of the back but with the top of the head not so dark, the yellow of the under parts averaging deeper, and the whitish gular area less purely white, with more of a yellowish tinge, and more restricted in extent, not spreading over the chest. Differs from *V. g. leucophrys* of eastern Colombia by more greenish, less brownish back and darker cap, less brownish and more drab in tone.

RANGE.—Both sides of the Western Andes of northern Perú, but not crossing the Marañón to its right bank.

DESCRIPTION OF TYPE.—Top of head dark Hair Brown, a little lighter on the forehead but somewhat dusky along the sides where there is a tendency to the formation of a dark stripe; back a little lighter than Dark Greenish Olive, grading into the color of the cap on the hind neck but with a number of dark streaks on the upper border of the mantle. A conspicuous white superciliary stripe reaching the base of the bill but darkening to Light Drab above the posterior half of the auriculars; a brownish spot immediately in front of the eye; auriculars and sides of neck largely Hair Brown, passing into whitish on the malar and subocular regions, continuous with the white of the lores; chin and throat whitish, faintly tinged with light yellowish, stronger posteriorly; breast and lower under parts somewhat more chrome-tinged than Citron Yellow, more intense on the flanks. Wings dull blackish (browner on the tertials) with narrow outer margins of remiges Yellowish Olive becoming whitish toward the tips of all but the outer four primaries; median and lesser upper wing-coverts much like the back; greater series with outer margins light yellowish olive; inner margin of remiges narrowly yellowish white; under wing-coverts bright yellow like the flanks; outermost primary well developed, 17 mm. in length; tail dusky brown with outer margins of feathers Yellowish Olive and with inner margins light yellow, broadest on the outer feathers. Maxilla (in dried skin) dark brown; mandible paler; feet slaty. Wing, 68 mm.; tail, 47; exposed culmen, 11; culmen from base, 14.1; tarsus 17.1.

REMARKS.—Females similar to the males in color but with shorter wing and tail on average. Wing, 61.5–65 (♂, 64.5–68); tail, 44.5–48 (♂, 48–52).

One specimen from Taulis and one from Seques are notable by reason of a particularly grayish tone of olive on the back (near Deep Grayish Olive) and quite pale yellow

under parts. One other Taulis specimen has a tendency in the same direction but a similar variation is shown by certain examples of *josephae* and appears to be of no taxonomic significance. Other specimens from Taulis and Seques are of normal dorsal coloration and nearly normal on the under parts. One male from Seques has a strong rufescent coloration on the forehead due, apparently, to stain by some unknown material, traces of which are to be seen on some of the feathers of the chin.

The specimens from Palambra show an occasional trend toward *josephae* by reason of a slightly darker cap or a little more extensive white on the lower throat, but their closer affinity is with the birds from just across the cordillera to the eastward.

A single specimen from La Lejia, east of the Middle Marañón, differs from *maranonicus* by its lighter coloration on the dorsal surface and is referred provisionally to *leucophrys* under which I have mentioned it on a preceding page.

Records presumably assignable to *maranonicus* are from Tabaconas and Tambillo.

Vireo gilvus dissors, new subspecies

TYPE from Cerro Munchique, west of Popayán, Colombia; altitude 7000 feet. No. 109,938, American Museum of Natural History. Adult male collected June 8, 1911, by W. B. Richardson.

DIAGNOSIS.—Differs from *V. g. leucophrys* of eastern Colombia by slightly darker cap of a more grayish, less warmly hued, brown; back distinctly greener, less brownish olive; under parts not distinctive. Differs from *V. g. josephae* of western Ecuador by somewhat lighter colored cap, paler and more greenish-olive back, and more restricted white throat patch with stronger yellowish flammulations on its lower portion. Differs from *V. g. chiriquensis* of Panamá by duller and more greenish-olive back and paler yellow under parts. Differs from *V. g. maranonicus* of north-central and northwestern Perú by lighter cap, paler and duller (often more greenish) back, and lighter yellow under parts.

RANGE.—Central and Western Andes of Colombia in the middle portion, not reaching Santa Elena.

DESCRIPTION OF TYPE.—Top of head Hair Brown X Chaetura Drab; back Yellowish Olive X Citrine Drab, shading into the color of the cap on the hind neck; chin and throat whitish with slight yellowish flammulations on the lower portion; breast and belly Barium Yellow X Naphthalene Yellow, a little deeper on the flanks but with a brownish tinge on the

sides of the breast; outer margins of remiges and rectrices Yellowish Olive X Dull Citrine; the dark lateral borders on the crown are nearly obsolete; the whitish superciliary stripe is only a little duller over the auriculars; otherwise, the pattern and colors are as described for *V. l. maranonicus*. Wing, 64.5 mm.; tail, 44.5; exposed culmen, 10.5; culmen from base, 15; tarsus, 17.

REMARKS.—Females similar to the males in color but averaging smaller. Wing, 64–65 mm. (σ^2 64–68); tail, 44–46 (σ^2 , 44–47).

A series of fifteen birds, including the type of *dissors*, show the characters given for this form. A smaller series of six specimens from Santa Elena, Antioquia region, are not the same and in spite of the greater distance of the locality from western Ecuador, these birds are closer to *josephae* than is *dissors*. Since there is no name applicable to the birds in question, they may be known as follows.

Vireo gilvus disjunctus, new subspecies

TYPE from Santa Elena, Antioquia, Colombia; altitude 9000 feet. No. 134,056, American Museum of Natural History. Adult male collected November 18, 1914, by Leo Miller and Howarth Boyle; original No. 10,115.

DIAGNOSIS.—Similar above to the darker examples of *V. g. josephae* of western Ecuador but with the throat patch more restricted and less purely white. Differs from *V. g. maranonicus* of north-central and northwestern Perú by darker upper parts and (usually) paler under parts. Differs from *V. g. dissors* by darker upper parts and from *V. g. leucophrys* by darker and duller cap and darker and less brownish, more greenish, olive back.

RANGE.—At present known only from the type locality but occasional in "Bogotá" collections.

DESCRIPTION OF TYPE.—Whole top of head dark Chaetura Drab; back dark Olive; chin and upper part of throat whitish but lower throat pale yellowish; breast and belly Primrose Yellow; outer margins of wing and tail dark Yellowish Olive; pattern and minor details as in *V. g. maranonicus*. Wing, 71.5 mm.; tail, 49.5; exposed culmen, 11.25; culmen from base, 15.5; tarsus, 16.

REMARKS.—Females similar to the males in color but somewhat smaller. Wing, 63.75–66.5 (σ^2 , 67–71.5); tail, 43–46 (σ^2 , 46–49.5).

One "Bogotá" trade-skin appears to be referable here. The upper parts are a little more brownish than the Santa Elena birds but equally dark (darker than *leucophrys*)

and the top of the head is very dark. It differs from other "Bogotá" skins as the fresher Santa Elena birds do from the comparable birds from the Eastern Andes.

SPECIMENS EXAMINED

V. g. laetissimus.—

BOLIVIA:

Incachaca, 3 ♂, 1 ♀;
Locotal, 1 ♀.

PERÚ:

Santo Domingo, 1 ♂;
Idma, 1 ♂, 1 ♀;
San Miguel, 1 ♂, 1 ♀;
Santa Rita, 1 ♀;
Torontoy, 2 ♂.

V. g. leucophrys.—

PERÚ:

Ucuyacu, 3 ♂, 2 ♀;
La Lejia, 1 ♂;
Chinchao, 1 ♂¹.

ECUADOR:

Baeza, 1 ♀;
Sabanilla, 1 ♂, 1 ♀.

COLOMBIA:

"Bogotá," 8 (?);
Fusugasugá, 1 ♂, 1 ♀;
El Roble, 2 ♀;
near San Augustin, 1 ♂;
La Candela, 1 ♂, 1 ♀;
La Palma, 1 ♂;
Anolaima, 1 ♀;
San Cayetano, 1 (?);
Santa Marta, Las Nubes, 1 ♂, 2 (?);
El Libano, 3 ♂, 2 (?);
Valparaiso, 2 ♂.

VENEZUELA:

Mérida, Nevados, 2 ♂;
Escorial, 2 ♂;
Pinos, 1 ♂.

V. g. maranonicus.—

PERÚ:

Chaupe, 4 ♂ (incl. type), 2 ♀;
La Lejia, 1 ♂;
Palambra, 1 ♂, 4 ♀, 1 (?);
Taulis, 2 ♂, 2 ♀;
Seques, 1 ♂, 1 ♀.

V. g. josephae.—

ECUADOR:

Coco, 2 ♂;
Pallatanga, 1 ♀;
Alamor, 4 ♂, 3 ♀;
Punta Santa Ana, 1 ♂;
San Bartolo, 1 ♂, 1 ♀;
Naranjo, 1 ♂;
Celica, 1 ♂;
Mindo, 1 ♂;
west side of Pichincha, 1 ♂;
Canzacota, 1 ♂.

V. g. dissors.—

COLOMBIA:

Cerro Munchique, 3 ♂ (incl. type), 1 ♀;
east of Palmira, 3 ♂, 1 ♀;

Primavera, 1 ♀;
San Antonio, 3 ♀;
Salento, 2 ♂;
El Eden, 1 ♀.

V. g. disjunctus.—

COLOMBIA:

Santa Elena, 2 ♂ (incl. type), 4 ♀;
"Bogotá," 1 (?).

V. g. mirandae.—

VENEZUELA:

Galipan, 2 ♂, 7 ♀;
Loma Redonda, 2 ♂;
Cumbre de Valencia, 1 ♂, 1 ♀;
El Limón, Puerto La Cruz, 1 ♂.

V. g. chiriquensis.—

PANAMÁ:

Chiriquí, Boquete, 9 ♂, 1 ♀, 1 (?);
Cerro Flores, 1 ♀;
Veraguas, Chitrá, 3 ♂, 2 ♀;
Cebaco Is., 1 ♂;
David, Sevilla Is., 1 ♀.

Costa Rica:

Santa Maria de Dota, 2 ♂, 2 ♀;
Aquinara, 2 ♂;
Agua Caliente, 1 ♂;
La Estrella, Cartago, 1 ♂, 1 ♀, 1 (?);
Barranca, 1 (?);
"Costa Rica," 2 (?).

V. g. amauronotus.—

MEXICO:

Vera Cruz, Jalapa, 4 ♂, 3 ♀, 1 (?).

Vireo altiloquus barbatulus (Cabanis)

Phyllomanes barbatulus CABANIS, 1855, Jour. für Orn., III, p. 467—Cuba; Berlin Mus.

Gadow (1883, Cat. Birds Brit. Mus., VIII, p. 294) list a single specimen from Chamicuros, collected by Hauxwell, as "*Vireo calidris* β *V. barbatula*." There is no other indication of the occurrence of the species in Perú. Bartlett's Chamicuros specimens (or specimen) had been assigned by Slater and Salvin to "*olivaceus*" but probably belonged to *chivi* which they did not realize was found in Perú. Both *chivi* and *olivaceus* were known to Gadow, however, and it is not likely that a specimen of either would have been identified as *barbatulus*.

The question, of course, remains as to the correct subspecific assignment of Hauxwell's Chamicuros specimen. Gadow included *barbadensis* in what he considered as typical "*calidris*" [= *altiloquus*]. *Grandinior* and *canescens* had not been distinguished in 1883 and in any case have not been reported as migrants. On the other hand I have a number of specimens of *altiloquus* and *barbatulus* from the Ama-

¹ Specimen in Field Museum of Natural History, Chicago.

zonian region though still a long way from Perú, and there is equal probability, so far as I can judge now, that either of these two forms might occur in Perú during the winter of the Northern Hemisphere. Accordingly I leave the Peruvian record as assigned by Gadow in *barbatulus*.

Without going into a detailed review of this species, I may state that a male from Muirapinimá and one from Igarapé Cacao Pereira, Rio Negro, Brazil, a male from Boca de Sina, Río Cunucunumá, Venezuela, and a bird without given sex from Suapure, Río Caura, a male from Masinga Vieja, Santa Marta, Colombia, and one from Bonda, Santa Marta, all agree best with a series of over eighty specimens of *altiloquus*, mostly from Jamaica and Hispaniola. A female from Igarapé Cacao Pereira and one from San Gabriel, Rio Negro, two males and a female from Faro, Rio Jamundá, a male from Buritaca, Santa Marta, Colombia, and a male, two females, and three birds without given sex from Bonda, Santa Marta, are closer to *barbatulus*, having the crown more clearly grayish, the dark line over the superciliaries less distinct, and the bill shorter than the average of *altiloquus*—in some of the specimens shorter than the minimum of that form. A specimen from Manaos, preserved in Field Museum of Natural History, has been assigned by Hellmayr to *altiloquus* but my notes on the specimen, made some years ago, indicate its probable identity with *barbatulus*, a conclusion strengthened by the Rio Negro and Faro specimens now at hand.

A single bird from Valencia, Trinidad, is quite certainly *barbadensis*. The dark upper surface, gray cap carried well over the hind neck, and the well-marked black stripe over the superciliaries place this specimen with a series of over thirty examples of that form. A male from Río Calovevora, Veragua, Panamá, is not so certainly assignable to this form but agrees better with it than with either *barbatulus* or *altiloquus*. I make a tentative assignment of it to *barbadensis* pending further material. There is a single record of *barbatulus* from Obaldia, Panamá, and one of *altiloquus* from the line of the Panamá Railroad!

I follow Hellmayr in adopting the specific name *altiloquus* for this group, considering *calidris*, *hispaniolensis*, and *virens* as unidentifiable; but, as discussed on a previous page, I accept Baird's action as first reviser in fixing the name *olivaceus* on the Red-eyed Vireo of North America for which Hellmayr adopted the name *virescens*.

Although there is considerable similarity between this group and the *olivaceus* group, there is enough distinction to warrant, in my belief, their specific separation.

SPECIMENS EXAMINED

V. a. altiloquus.—

- ST. THOMAS: 8 ♂, 1 ♀, 2 (?).
- SANTO DOMINGO: 27 ♂, 11 ♀, 1 (?).
- NAVASSA: 3 ♂.
- JAMAICA: 7 ♂, 3 ♀.
- PUERTO RICO: 4 ♂, 4 ♀, 1 (?).
- SOMBRERO: 1 ♀ (type of *virginalis*), 1 (?) (type of *atripennis*).
- COLOMBIA:

 - Santa Marta, Bonda, 1 ♂;
 - Masinga Vieja, 1 ♂.

- VENEZUELA:

 - Río Cunucunumá, Boca de Sina, 1 ♂;
 - Río Caura, Suapure, 1 (?).

- BRAZIL:

 - Rio Negro, Muirapinimá, 1 ♂;
 - Igarapé Cacao Pereira, 1 ♂.

V. a. barbatulus.—

- CUBA: 22 ♂, 12 ♀, 4 (?).
- BAHAMAS: 3 ♂.
- ANDROS: 1 ♂, 1 ♀.
- DRY TORTUGAS: 1 ♂.
- COLOMBIA:

 - Santa Marta, Bonda, 1 ♂, 2 ♀, 4 (?);
 - Buritaca, 1 ♂;
 - Cúcuta.¹

- BRAZIL:

 - Faro, 2 ♂, 1 ♀;
 - Rio Negro, San Gabriel, 1 ♀;
 - Igarapé Cacao Pereira, 1 ♀;
 - Manaos, 1 ♂².

V. a. barbadensis.—

- DOMINICA: 5 ♂, 5 ♀, 1 (?).
- ST. VINCENT: 2 ♂, 1 (?).
- GAUDELOUPE: 2 ♂, 2 ♀, 1 (?).
- ANTIGUA: 1 ♂, 4 ♀, 1 (?).
- SANTA LUCIA: 2 ♂, 2 ♀.
- BARBUDA: 2 ♀.
- SANTA CRUZ: 1 ♂.
- TRINIDAD:

 - Valencia, 1 ♀.

PANAMÁ:

- Río Calovevora, 1 ♂.

V. a. grandior.—

- OLD PROVIDENCE: 1 ♂.

¹ Specimen in Cúcuta Museum.

² Specimen in Field Museum of Natural History, Chicago.